

**Pt. 150, App. II**

**46 CFR Ch. I (10–1–13 Edition)**

Trimethyl phosphite (34) is not compatible with Groups 1 and 4.

1,3,5-Trioxane (41) is not compatible with Group 1 (non-oxidizing mineral acids) and Group 4 (Organic acids).

Vinyl neodecanoate (13) is not compatible with Group 5, Caustics.

**APPENDIX II TO PART 150—EXPLANATION OF FIGURE 1**

*Definition of a hazardous reaction*— As a first approximation, a mixture of two cargoes is considered hazardous when, under specified condition, the temperature rise of the mixture exceeds 25 °C or a gas is evolved. It is possible for the reaction of two cargoes to produce a product that is significantly more flammable or toxic than the original cargoes even though the reaction is non-hazardous from temperature or pressure considerations, although no examples of such a reaction are known at this time.

*Chart format*— There are different degrees of reactivity among the various cargoes. Many of them are relatively non-reactive; For example, aromatic hydrocarbons or paraffins. Others will form hazardous combinations with many groups; For example, the inorganic acids.

The cargo groups in the compatibility chart are separated into two categories: 1 through 22 are “Reactive Groups” and 30 through 43 are “Cargo Groups”. Left unassigned and available for future expansion are groups 23 through 29 and those past 43. Reactive Groups contain products which are chemically the most reactive; dangerous combinations may result between members of different Reactive Groups and between members of Reactive Groups and Cargo Groups. Products assigned to Cargo Groups, however, are much less reactive; dangerous combinations involving these can be formed only with members of certain Reactive Groups. Cargo Groups do not react hazardously with one another.

*Using the Compatibility Chart*— The following procedure explains how the compatibility chart should be used to find compatibility information:

(1) Determine the group numbers of the two cargoes by referring to the alphabetical listing of cargoes and the corresponding groups (Table I). Many cargoes are listed under their parent names; unless otherwise indicated, isomers or mixtures of isomers of a particular cargo are assigned to the same group. For example, to find the group number for Isobutyl Alcohol, look under the parent name Butyl Alcohol. Similarly, the group number for para-Xylene is found under the entry Xylene. If a cargo cannot be found in this listing, contact the Coast Guard for a group determination (see §150.140).

(2) If both group numbers are between 30 and 43 inclusive, the products are compatible and the chart need not be used.

(3) If both group numbers do not fall between 30 and 43 inclusive, locate one of the numbers on the left of the chart (Cargo Groups) and the other across the top (Reactive Groups). (Note that if a group number is between 30 and 43, it can only be found on the left side of the chart.) The box formed by the intersection of the column and row containing the two numbers will contain one of the following:

- (a) Blank—The two cargoes are compatible.
- (b) “X”—The two cargoes are not compatible.

(Note that reactivity may vary among the group members. Refer to Table I or Table II to find whether the products in question are referenced by a footnote which indicates that exceptions exist and are listed in Appendix I. Unless the combination is specifically mentioned in Appendix I, it is compatible.)

**EXAMPLES**

Combination	Groups	Compatible
Butyraldehyde/Acetic Acid .....	19/4	Yes.
Allyl Alcohol/Toluene Diisocyanate ...	15/12	No.
Decene/Ethyl Benzene .....	30/32	Yes.
Ethanolamine/Acetone .....	8/18	Yes.
Ammonia/Dimethylformamide .....	6/10	No.

[CGD 75–59, 45 FR 70263, Oct. 23, 1980, as amended by CGD 83–047, 50 FR 33046, Aug. 16, 1985]

**APPENDIX III TO PART 150—TESTING PROCEDURES FOR DETERMINING EXCEPTIONS TO THE CHART**

**EXPERIMENTAL PROCEDURE FOR EVALUATING BINARY CHEMICAL REACTIVITY**

*General safety precautions*—Chemical reactivity tests have, by their nature, serious potential for injuring the experimenter or destroying equipment. The experimenter should 1) have knowledge of the magnitude of the reactivity to be expected, 2) use adequate facilities and protective equipment to prevent injury from splatter of materials or release of fumes, and 3) start on a small scale so that unexpected reactions can be safely contained. All tests should be performed in a well-ventilated laboratory hood provided with shields.

*Testing chemicals other than liquids*—The procedure outlined below was developed for chemicals which are liquids at ambient temperatures. If one or both chemicals are normally shipped at elevated temperatures, the same procedure may be followed except the chemicals are tested at their respective shipping temperatures and the oil bath in Step 3